

**IMPROVED SWITCH CAPACITOR CIRCUIT AND APPLICATIONS
THEREOF**

ABSTRACT OF THE DISCLOSURE

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An improved switch capacitor circuit includes a capacitor, a 1st voltage reference module, a 2nd voltage reference module, and a plurality of switching elements. The capacitor is operably coupled via the plurality of switching elements to sample an input signal during a 1st interval of a sampling period and during a 2nd interval of the sampling period to provide a representation of the input signal. The 2nd reference module produces a 2nd reference voltage that is representative of the common mode of the supply (e.g. V_{DD} and V_{SS}). The 1st voltage reference module produces a 1st reference voltage that is representative of the common mode of the analog input signal. As such, the capacitor is charged during the 1st interval based on the 1st reference voltage and discharged during the 2nd interval based on the 2nd reference voltage.

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